IMPACTS OF DROUGHT ON WILDLIFE

Impacts at a Glance – It's all about Habitat

- Habitat for wildlife is food, water, cover, and useable space
- Drought causes poorer habitat suitability
- Lower habitat suitability leads to increased mortality through starvation, predation, reduced production and recruitment (fewer young survive)
- Continued drought accelerates negative impacts to all wildlife populations because habitat gets worse
- Impacts tend to be cumulative = fewer critters

Drought Impacts to Habitat

- Dry habitats like those in the Southwest deserts are more sensitive to slight variations in rainfall than wetter habitats.
- Many impacts are indirect, such as drought stress and increased susceptibility of plants to insect damage.
- Because the Southwest is so dry, habitats recover at a much slower rate than in wetter areas of the country
- Drought lowers ‘carrying capacity’ of habitat, so wildlife populations decline

Variation of Impacts on Wildlife

- Severity of impacts varies by wildlife species
- K-selected species (long-lived, few large well-developed young, good parental care) and sensitive species populations are typically impacted more drastically. Abundance tends to show definite trends in response to habitat condition. Habitat carrying capacity can dictate population size (e.g., deer, elk, predators).
- r-selected species populations (short-lived, many young, less parental care) are more resilient to annual impacts. Show wide variation year-year in abundance. Carrying capacity for these species is rarely (if ever) achieved (e.g., quail, rodents)

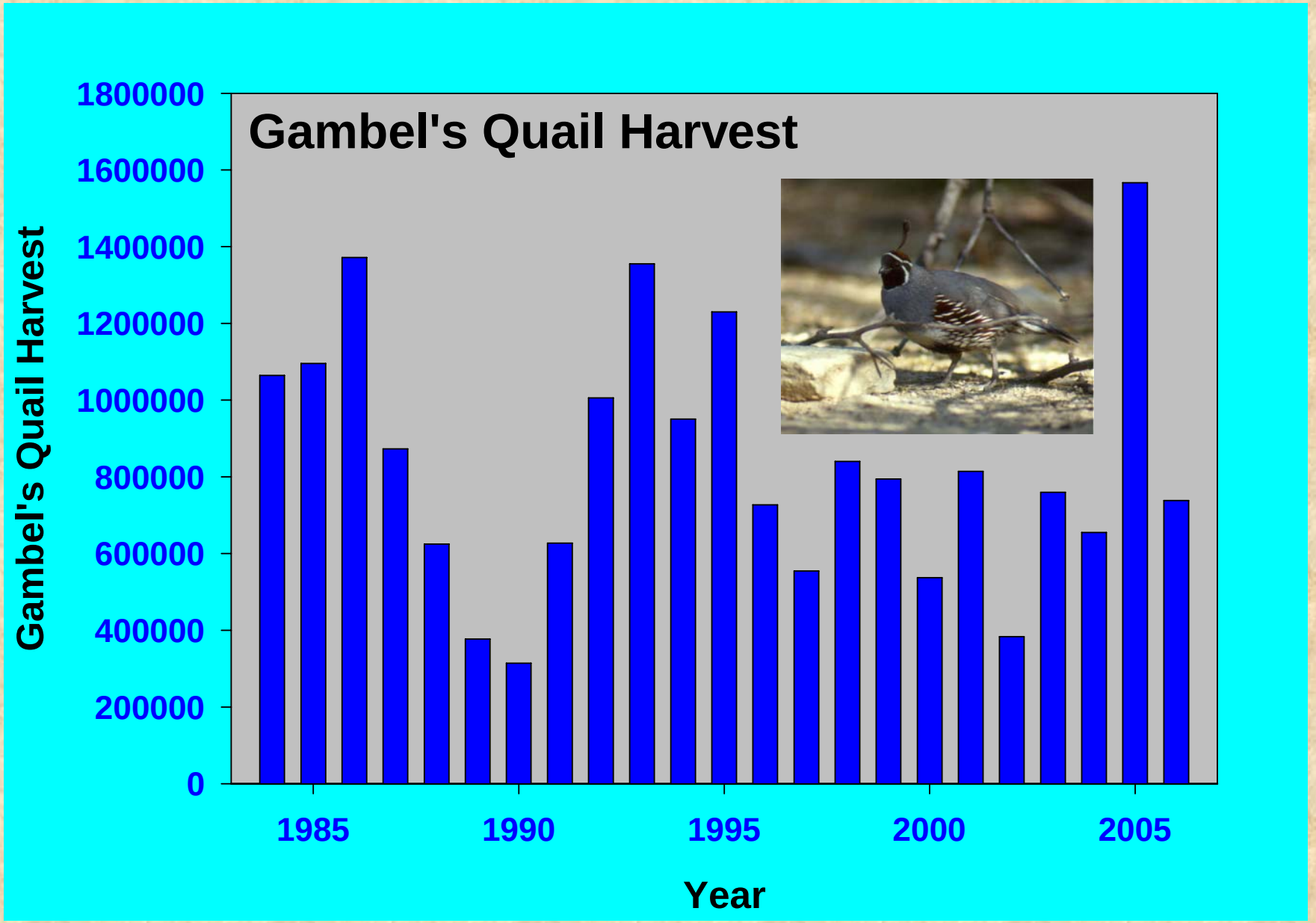
Historic Deer Harvest in Arizona

Deer Harvest

30000
25000
20000
15000
10000
5000
0

1985
1990
1995
2000
2005

Year


Gambel's Quail Harvest
Gambel's Quail Harvest
1800000
1600000
1400000
1200000
1000000
800000
600000
400000
200000
0
1985
1990
1995
2000
2005
Year

Impacts to all Wildlife

- Similarities exist regarding impacts to game and nongame, terrestrial and aquatic, predators and prey
- Sensitive species (T&E, others) are greatly impacted by long-term drought since this represents another major limitation to population increase
- Some species of fish, birds, mammals, reptiles, and amphibians have lost crucial habitats as a direct or indirect result of long-term drought.
- Drought tends to concentrate wildlife, making them much more susceptible to disease and predation
- Drought + Habitat Fragmentation = reduced wildlife populations and increased challenges for Wildlife Agencies

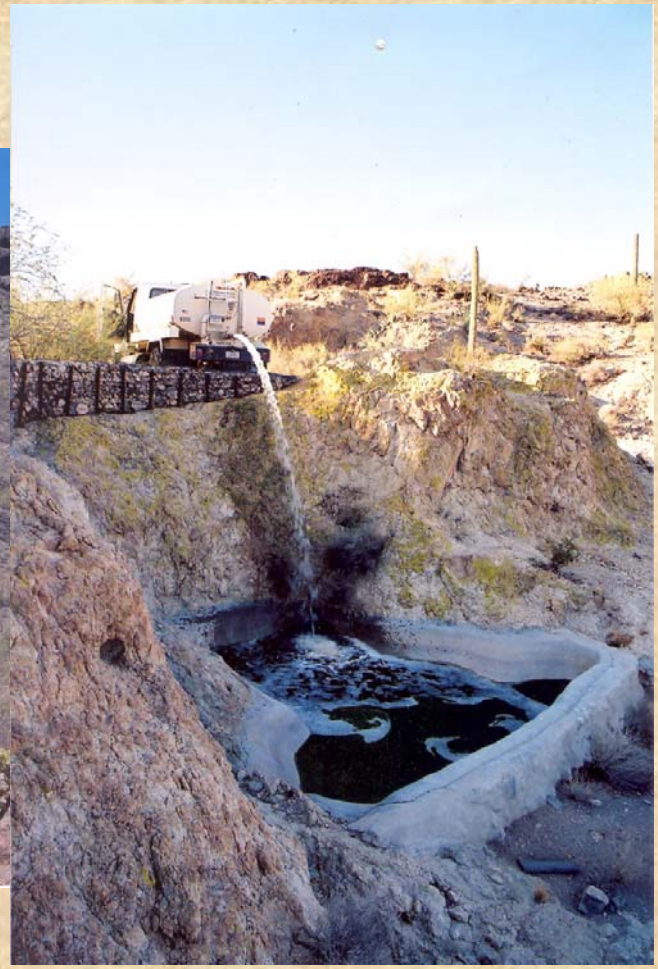
Economic Impacts of Declining Wildlife

- Loss of direct and indirect $ for local Arizona communities from hunters and non-hunters alike
- Reductions in customer outlay for sporting goods, etc.
- Fewer Federal $ for Wildlife Management
- Represents a direct loss to Arizona Game and Fish Department in license revenues
- Times of poor habitat quality require increased management actions from AZGFD and others, despite reduced $

Increased Management Actions

- During periods of low wildlife abundance, survey efforts must increase
- More effort and $ for population maintenance
- Water catchment maintenance/water hauling costs increase
- Habitat maintenance costs increase
- Many species move into town in search of water and food
- ‘Nuisance’ wildlife calls increase as human-wildlife conflicts in urban settings increase

Water Developments and Water Management



Total Number of Department Water Developments

Development Type	
Typical Collection Catchments	950
Pot Holes	100
Storage Tank/Drinker Only	5
Spring	86
Well/Windmill	9
TOTAL	1150

Water Hauling Comparison Data

- 1996 and 2002-hauled approximately 1.4 million gallons of water per year to wildlife by every conceivable source (Game and Fish, Utilities, Private Contractors and Volunteers)
- A typical year sees approximately 600,000 gallons of water hauled to wildlife
- 2007 is shaping up to be a typical year, although it experienced the 6th driest monsoon on record.
- La Nina (above-average temps/ less precip.) weather pattern predicted through the end of 2007

Bighorn Ram at Water

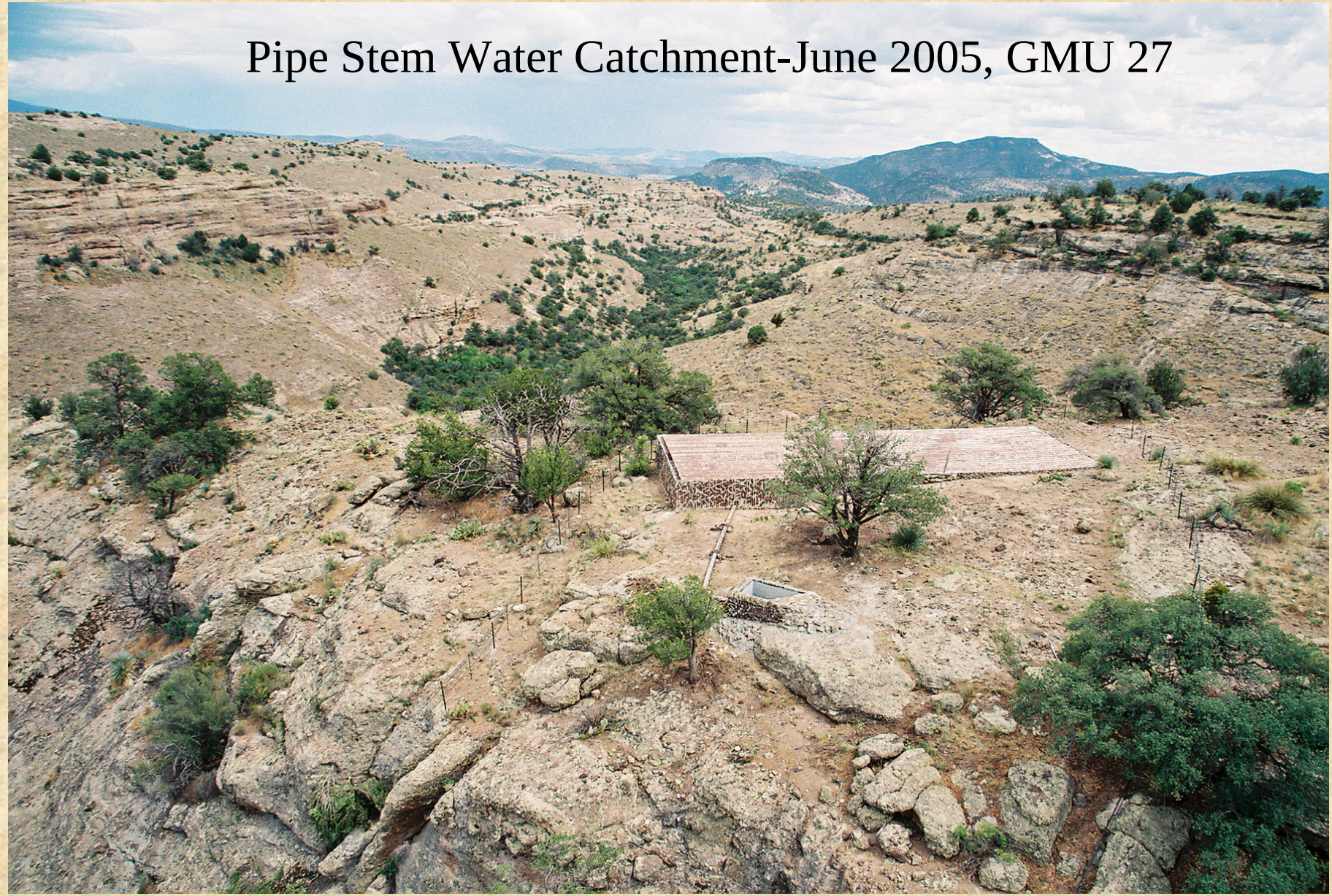
Ewes and Lambs Watering in GMU 15 C
July 2007

Sheep Watering in GMU15 C in July 2007

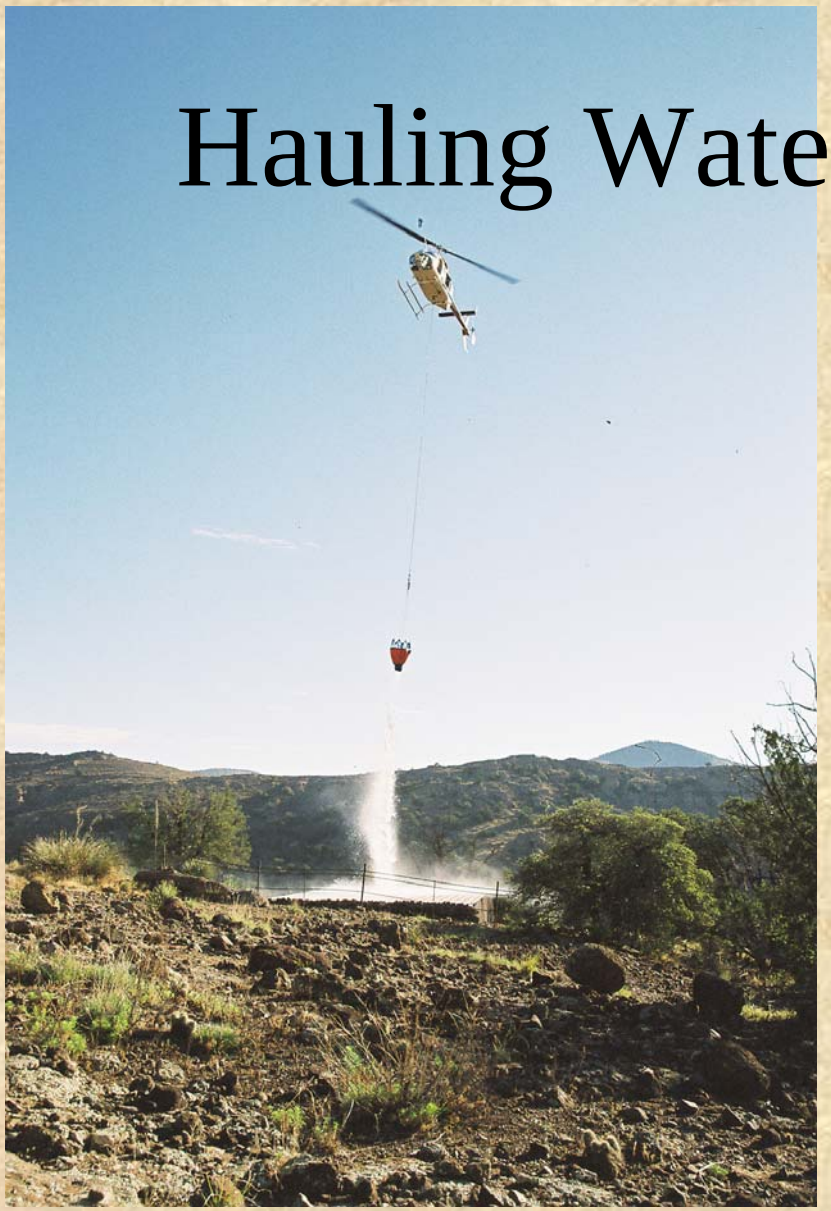
Sonoran Pronghorn at Water

Mule Deer Buck at Water

Pipe Stem Water Catchment-June 2005, GMU 27



Hauling Water to Pipe Stem



Questions?